WHAT IS CLAIMED IS:

1. A method for promoting nerve regeneration or for conferring neuroprotection and preventing or inhibiting neuronal degeneration in the central nervous system or peripheral nervous system for ameliorating the effects of injury or disease, comprising administering to an individual in need thereof at least one ingredient selected from the group consisting of:

(a) NS-specific activated T cells;

(b) a NS-specific antigen or an analog thereof;

(c) a peptide derived from an NS-specific antigen or from an analog thereof, or an analog or derivative of said peptide;

(d) a nucleotide sequence encoding an NS-specific antigen or an analog thereof;

(e) a nucleotide sequence encoding a peptide derived from an NS-specific antigen or from an analog thereof, or an analog of said peptide; or

(f) any combination of (a)-(e).

2. The method according to claim 1 wherein the injury is selected from the group consisting of spinal cord injury, blunt trauma, penetrating trauma, hemorrhagic stroke, ischemic stroke or damages caused by surgery such as tumor excision.

3. The method according to claim 1 wherein the disease is not an autoimmune disease or a neoplasm.

4. The method according to claim 1 wherein the disease results in a degenerative process occurring in either gray or white matter or both.

5. The method according to claim 4 wherein said disease is selected from the group consisting of diabetic neuropathy, senile dementia, Alzheimer's disease, Parkinson's disease, facial nerve (Bell's) palsy, glaucoma, Huntington's chorea, amyotrophic lateral sclerosis, non-arteritic optic neuropathy, and vitamin deficiency.

6. The method according to claim 4 wherein said disease is selected from the group consisting of intervertebral disc herniation, prion diseases such as Creutzfeldt-Jakob disease, carpal tunnel syndrome, peripheral neuropathies associated with various diseases, including but not limited to, uremia, porphyria, hypoglycemia, Sjorgren Larsson syndrome, acute sensory neuropathy, chronic ataxic neuropathy, biliary cirrhosis, primary amyloidosis, obstructive lung diseases, acromegaly, malabsorption syndromes, polycythemia vera, IgA- and IgG gamma-pathies, complications of various drugs (e.g., metronidazole) and toxins (e.g., alcohol or organophosphates), Charcot-Marie-

Tooth disease, ataxia telangectasia, Friedreich's ataxia, amyloid polyneuropathies, adrenomyeloneuropathy, Giant axonal neuropathy, Refsum's disease, Fabry's disease, and lipoproteinemia.

7. The method according to claim 1 which comprises administering to the individual in need NS-specific activated T cells.

8. The method according to claim 7 wherein said NS-specific activated T cells are selected from the group consisting of autologous T cells, semi-allogeneic T cells or allogeneic T cells from related donors, or from donors who are HLA-matched or HLA-partially matched, or from unrelated donors.

9. The method according to claim 8 wherein said T cells are autologous T cells.

10. The method according to claim 8 wherein said T cells are semi-allogeneic T cells.

11. The method according to claim 9 or 10 wherein said autologous or semi-allogeneic T cells have been sensitized to an NS-specific antigen or an analog thereof.

12. The method according to claim 11 wherein the NS-specific antigen is selected from the group consisting of

myelin basic protein (MBP), myelin oligodendrocyte glycoprotein (MOG), proteolipid protein (PLP), myelin-associated glycoprotein (MAG), S-100, β-amyloid, Thy-1, P0, P2, and a neurotransmitter receptor.

13. The method according to claim 12 wherein the NS-specific antigen is MBP.

14. The method according to claim 11 wherein the NS-specific antigen is selected from the group consisting of Nogo-A, Nogo-B, Nogo-C, and Nogo receptor.

15. The method according to claim 9 or 10 wherein said autologous or semi-allogeneic T cells have been sensitized to a peptide derived from an NS-specific antigen or from an analog thereof, or to an analog or derivative of said peptide.

16. The method according to claim 15 wherein said peptide derived from an NS-specific antigen is an immunogenic epitope or a cryptic epitope of said antigen.

17. The method according to claim 16 wherein said peptide is an immunogenic epitope or a cryptic epitope derived from MBP.

18. The method according to claim 17 wherein said peptide corresponds to a peptide selected from the sequences

consisting of the sequences p11-30, p51-70, p87-99, p91-110, p131-150, and p151-170 of MBP.

19. The method according to claim 18 wherein said peptide corresponds to the sequence p51-70 of MBP.

20. The method according to claim 16 wherein said peptide is an immunogenic epitope or a cryptic epitope derived from MOG.

21. The method according to claim 20 wherein said peptide corresponds to the sequence p35-55 of MOG.

22. The method according to claim 16 wherein said peptide is an immunogenic epitope or a cryptic epitope derived from Nogo.

23. The method according to claim 22 wherein said peptide is the Nogo-A p472 peptide (SEQ ID NO:19).

24. The method according to claim 16 wherein said peptide is an immunogenic epitope or a cryptic epitope derived from Nogo receptor.

25. The method according to claim 9 or 10 wherein said autologous or semi-allogeneic T cells have been stored for future use.

26. The method according to claim 1 which comprises administering to the individual in need a NS-specific antigen or an analog thereof.

27. The method according to claim 26 wherein the NS-specific antigen is selected from the group consisting of myelin basic protein (MBP), myelin oligodendrocyte glycoprotein (MOG), proteolipid protein (PLP), myelin-associated glycoprotein (MAG), S-100, β-amyloid, Thy-1, P0, P2, and a neurotransmitter receptor.

28. The method according to claim 27 wherein the NS-specific antigen is MBP.

29. The method according to claim 28 wherein the MBP is administered orally.

30. The method according to claim 23 wherein the NS-specific antigen is selected from the group consisting of Nogo-A, Nogo-B, Nogo-C, and Nogo receptor.

31. The method according to claim 1 which comprises administering to the individual in need a peptide derived from an NS-specific antigen or from an analog thereof, or an analog or derivative of said peptide.

32. The method according to claim 31 wherein said peptide derived from an NS-specific antigen is an immunogenic epitope or a cryptic epitope of said antigen.

33. The method according to claim 32 wherein said peptide is an immunogenic epitope or a cryptic epitope derived from MBP.

34. The method according to claim 33 wherein said peptide corresponds to a peptide selected from the sequences consisting of the sequences p11-30, p51-70, p87-99, p91-110, p131-150, and p151-170 of MBP.

35. The method according to claim 34 wherein said peptide corresponds to the sequence p51-70 of MBP.

36. The method according to claim 32 wherein said peptide is an immunogenic epitope or a cryptic epitope derived from MOG.

37. The method according to claim 36 wherein said peptide corresponds to the sequence p35-55 of MOG.

38. The method according to claim 32 wherein said peptide is an immunogenic epitope or a cryptic epitope derived from Nogo.

39. The method according to claim 38 wherein said peptide is the Nogo-A p472 peptide (SEQ ID NO:19).

40. The method according to claim 32 wherein said peptide is an immunogenic epitope or a cryptic epitope derived from Nogo receptor.

41. The method according to claim 1 wherein said NS-specific antigen or a peptide derived therefrom is administered intravenously, intrathecally, intramuscularly, intradermally, topically, subcutaneously, or mucosally.

42. The method according to claim 41 wherein said mucosal administration is selected from the group consisting of oral, intranasal, buccal, vaginal and rectal administration.

43. The method according to claim 42 wherein said NS-specific antigen or peptide derived therefrom is administered orally and the individual is actively immunized to build up a critical T cell response.

44. A method for preventing or inhibiting neuronal degeneration in the central nervous system or peripheral nervous system comprising administering to an individual in need thereof an effective amount of a composition for up-regulating B7.2 co-stimulatory molecule or genetically manipulating B7.2 co-stimulatory molecule in said individual.